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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/630,194

07/30/2003

Chae-Sung Kim

29926/39499

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10/05/2006

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EXAMINER

HENN, TIMOTHY J

ART UNIT

PAPER NUMBER

2622

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/630,194

Applicant(s)

KIM, CHAE-SUNG

Examiner

Timothy J. Henn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a connection between ROM TABLE 520 and multiplier 521 in Figure 7 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Information Disclosure Statement

2. The information disclosure statement filed 30 July 2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. No Copy of the Hynix Semiconductor Inc. reference has been received and the reference will therefore not be considered at this time.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

[claims 5-13]

Claims 5-13 contain a summation over 0 to N-1 and claim that "N is an integer". The specification discloses a pixel array which includes N x M pixels and further discloses the general form of the FFT equation which includes a summation over 0 to N-

1 where "N is an integer". However, the specification does not disclose how one is to set the value N in the claimed equation (i.e. Eq. 2 in the specification).

5. Claims 5-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

[claims 5-9]

Claims 5-13 include the limitation "a pixel array including a pixel group which has N x M number of unit pixels" and later claims an equation including a summation over 0 to N-1 in which "N is an integer". However, it is unclear if the N from the equation is equivalent to the N from the pixel array dimensions or if they are different.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (WO 00/07363).

[claim 1]

Regarding claim 1, Smith discloses a pixel array of an image sensor, comprising: a pixel group, including N x M number of unit pixels, and adapted to detect an image

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signal, N and M being integers (Figure 7, Item 100; the examiner notes that a photo sensor array as shown is inherently an N x M array of pixels as claimed); and a pixel column, allocated along a row direction of the pixel group, and adapted to detect an average frequency of a corresponding pixel row to thereby detect a flicker noise (p. 6; Figures 3, 6 and 8).

[claim 2]

Regarding claim 2, Smith discloses P pixel columns allocated at both sides of the pixel group in the row direction, P being larger than 1 (p. 6).

[claim 3]

Regarding claim 3, Smith discloses a pixel column which is constructed to detect only one frequency component in the range of 50Hz to 200Hz (e.g. Figure 6; note that Smith discloses detecting only 1 frequency component for the lighting flicker period).

[claim 4]

Regarding claim 4, Smith discloses detecting a frequency of flicker noise which is 100Hz or 120Hz (Figures 6 and 8; pp. 11-12).

Allowable Subject Matter

8. Claims 5-13 are considered allowable over the prior art, however the claims contain deficiencies under 35 USC §112 first and second paragraph which will have to be overcome.

[claims 5-13]

Regarding claims 5-13, the prior art does not teach or fairly suggest a flicker detection system which uses the claimed equation. While it is known in the art to use FFT equations to detect the frequency of flicker of a light source (see for example Smith et al.), the prior art does not teach the exact equation:

$$\sum_{k=0}^{k=N-1} Y_k e^{-j2\pi \cdot m / 255}$$

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following is considered relevant to flicker detection in digital cameras:

| | | |
|-------|-----------------|-----------------|
| i. | Smith et al. | US 6,504,518 |
| ii. | Baer | US 2003/0030744 |
| iii. | Poplin et al. | US 2004/0201729 |
| iv. | Chung et al. | US 6,271,884 |
| v. | Daiku et al. | US 2002/0158971 |
| vi. | Kasahara et al. | US 6,710,818 |
| vii. | Munson et al. | US 6,295,085 |
| viii. | Suzuki | US 6,999,118 |

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Henn whose telephone number is (571) 272-7310. The examiner can normally be reached on M-F 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TJH
9/29/2006


DAVID OMETZ
SUPERVISORY PATENT EXAMINER